

## The Collection of the Fishes Trawled in the Ross Sea

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ロス海での底引網採集魚について

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**要旨:** 南極大陸周辺の魚類相に関する報告は、いくつか行われており、ロス海についても報告されている (ANDRIASHEV, Issled. Fauny Morey, 2(10), 335, 1964; DEWITT, Antarct. Map Folio Ser., 15, Am. Geogr. Soc., 10p, 1971; RESECK, N. Z. J. Sci., 4(1), 107, 1961). 今回、海洋水産資源開発センターがロス海において行った底引トロールの試験操業において、約300個体、24種の底魚が採捕されたので報告する。

個体数としては、*Pleuragramma antarcticum* BOULENGER が最も多く、200個体以上、次いで *Chionodraco myersi* DEWITT and TYLER の51個体であった。

採集物を調べた結果、Bathyrdraco 科の *Vomeridens infuscipinnis* (DEWITT) が2個体含まれていたが、この種のロス海よりの報告は、本報告が最初である。また、*Chionodraco myersi* の第1背鰭の最長鰭条長に、性的二型らしき様相が認められたが、生殖巣の保存状態が悪いため、確認はできなかった。さらに *Cryodraco* 属9個体が含まれていたが、調べた結果従来のこの属における種の査定には混乱があるように思われた。今回の標本により、臀鰭基部に沿って縦走する側線について、二型性のあることが確認されたが、この特徴は、この属の種の解明に役立つものと思われる。

**Abstract:** About three hundred specimens of fishes trawled in the Ross Sea have been identified. They represent twenty-four species and six families.

*Pleuragramma antarcticum* BOULENGER is by far the commonest and *Chionodraco myersi* DEWITT and TYLER is the second in abundance.

Two specimens of *Vomeridens infuscipinnis* (DEWITT) are included. This species has never been recorded from the Ross Sea.

In *Chionodraco myersi*, variation in color and the relative length of the first dorsal fin seems to be related with the sexes.

The collection contained nine specimens of the genus *Cryodraco* of which specific identification is difficult because of some confusion, evaluation of in the length of the lower lateral line and the relative length of the pelvic fin.

From December 1978 to February 1979 an exploratory fishing of the Antarctic

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fishes and krills was carried out in the Ross Sea by Japan Marine Fishery Resource Research Center on board the DAINI BANSHU-MARU (2406 tons). From four collecting stations for bottom trawl about three hundred specimens of fishes belonging to twenty-four species and six families were obtained. A systematic list and figures of the fishes with notes are given in this report. Fishes taken along with the Antarctic krill will be dealt with elsewhere. Detailed study of the stomach contents will be published by Mr. Masanori TAKAHASHI.

All the fishes were frozen on board at about  $-20^{\circ}\text{C}$  and brought back to Japan. After cataloguing and examining the stomach contents, most of the fishes were fixed in 10% formalin for one month, and then were transferred into 70% ethyl alcohol.

The writers take pleasure in expressing here their sincere thanks to Mr. Masanori TAKAHASHI, Japan Marine Fishery Resource Research Center, for his kindness in giving valuable specimens; to Prof. Koichi SEKIGUCHI, Institute of Biological Sciences, University of Tsukuba, for his advice; and to the Yamada Science Foundation and Itô Foundation for the Advancement of Ichthyology for help in many ways.

### List of the fishes collected

The "length" in this list is the standard length, and the stations are indicated in Fig. 1.

#### Station 1

Date: February 22, 1979

Position:  $76^{\circ}10.3'S$ ,  $168^{\circ}57.0'E$ – $76^{\circ}11.9'S$ ,  $168^{\circ}55.0'E$

Depth: 550–600 m

#### Family Liparidae

*Paraliparis* sp.

8 specimens

134–212 mm

#### Family Nototheniidae

*Trematomus nicolai* (BOULENGER, 1902)

1 specimen

147 mm

*Trematomus loennbergii* REGAN, 1913

1 specimen

249 mm

*Trematomus scotti* (BOULENGER, 1907)

3 specimens

101–119 mm

#### Family Channichthyidae

*Pagetopsis maculatus* BARSUKOV and PERMITIN, 1958

1 specimen

189 mm

*Cryodraco antarcticus* DOLLO, 1900

1 specimen

380 mm

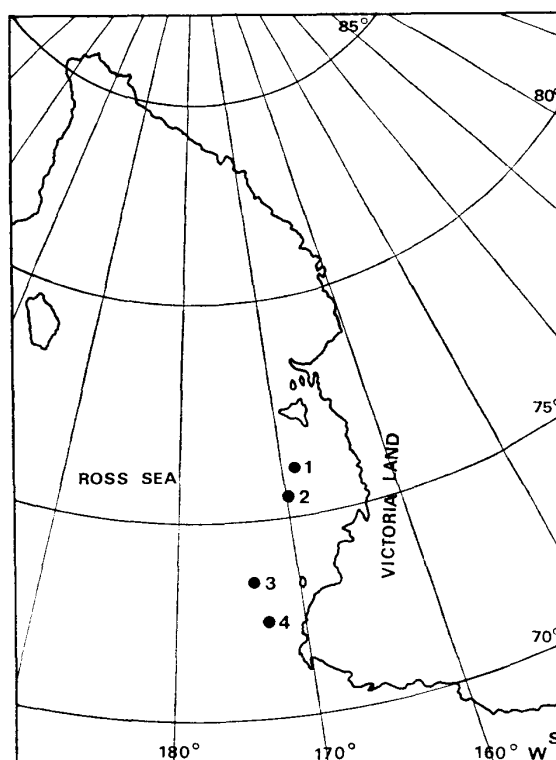


Fig. 1. Locations of the stations for trawling (Arabic numbers represent station numbers mentioned in the text).

*Chionodraco hamatus* (LÖNNBERG, 1905)

2 specimens

235, 313 mm

**Station 2**

Date: February 22, 1979

Position: 75°30.0'S, 169°55.3'E–75°33.0'S, 169°50.5'E

Depth: 500 m

Family Nototheniidae

*Trematomus loennbergii* REGAN, 1913

2 specimens

124, 244 mm

*Trematomus scotti* (BOULENGER, 1907)

4 specimens

105–127 mm

*Trematomus lepidorhinus* (PAPPENHEIM, 1911)

1 specimen

230 mm

*Pleuragramma antarcticum* BOULENGER, 1902

not examined

Family Harpagiferidae

*Dolloidraco longedorsalis* ROULE, 1913

1 specimen	97 mm
<i>Histiodraco verifer</i> (REGAN, 1914)	
2 specimens	111, 119 mm
Family Bathydraconidae	
<i>Vomeridens infuscipinnis</i> (DEWITT, 1964)	
2 specimens	145, 149 mm
Family Channichthyidae	
<i>Neopagetopsis ionah</i> NYBELIN, 1947	
1 specimen	308 mm
<i>Pagetopsis macropterus</i> (BOULENGER, 1907)	
1 specimen	112 mm
<i>Pagetopsis maculatus</i> BARSUKOV and PERMITIN, 1958	
1 specimen	152 mm
<i>Cryodraco antarcticus</i> DOLLO, 1900	
5 specimens	236–334 mm
<i>Chionodraco myersi</i> DEWITT and TYLER, 1960	
7 specimens	259–331 mm

**Station 3**

Date: February 23, 1979

Position: 73°27.7'S, 173°52.0'E–73°30.5'S, 173°46.9'E

Depth: 280 m

## Family Nototheniidae

<i>Trematomus eulepidotus</i> REGAN, 1914	
1 specimen	224 mm
<i>Pleuragramma antarcticum</i> BOULENGER, 1902	
not examined	

## Family Channichthyidae

<i>Neopagetopsis ionah</i> NYBELIN, 1947	
1 specimen	435 mm
<i>Cryodraco antarcticus</i> DOLLO, 1900	
1 specimen	307 mm
<i>Cryodraco</i> sp.	
2 specimens	377, 408 mm
<i>Chionodraco myersi</i> DEWITT and TYLER, 1960	
4 specimens	297–313 mm

**Station 4**

Date: February 23, 1979

Position: 72°29.5'S, 172°56.0'E–72°30.4'S, 172°56.6'E

Depth: 550 m

Family Zoarcidae

*Rhigophila dearborni* DEWITT, 1962

2 specimens 211, 212 mm

Family Nototheniidae

*Pagothenia borchgrevinki* (BOULENGER, 1902)

1 specimen 202 mm

*Trematomus scotti* (BOULENGER, 1907)

1 specimen 89 mm

*Dissostichus mawsoni* NORMAN, 1937

1 specimen, not examined (large adult)

*Pleuragramma antarcticum* BOULENGER, 1902

not examined

Family Harpagiferidae

*Artedidraco orianae* REGAN, 1914

2 specimens 97, 101 mm

*Pogonophryne scotti* REGAN, 1914

1 specimen 204 mm

*Pogonophryne marmoratus* NORMAN, 1938

1 specimen 153 mm

Family Channichthyidae

*Neopagetopsis ionah* NYBELIN, 1947

3 specimens 202–420 mm

*Pagetopsis maculatus* BARSUKOV and PERMITIN, 1958

2 specimens 68, 101 mm

*Chionodraco hamatus* (LÖNNBERG, 1905)

1 specimen 363 mm

*Chionodraco myersi* DEWITT and TYLER, 1960

40 specimens 94–332 mm

*Chaenodraco wilsoni* REGAN, 1914

17 specimens 187–246 mm

Remarks. Given below are some notes on the fishes examined.

**Liparidae:** Eight specimens of this family are very close to *Paraliparis gracilis* NORMAN, but this species has never been recorded from East Antarctica. We do not make their specific identification (another reason is the description of *Paraliparis gibbericeps* ANDRIASHEV and NEELOV is not at hand).

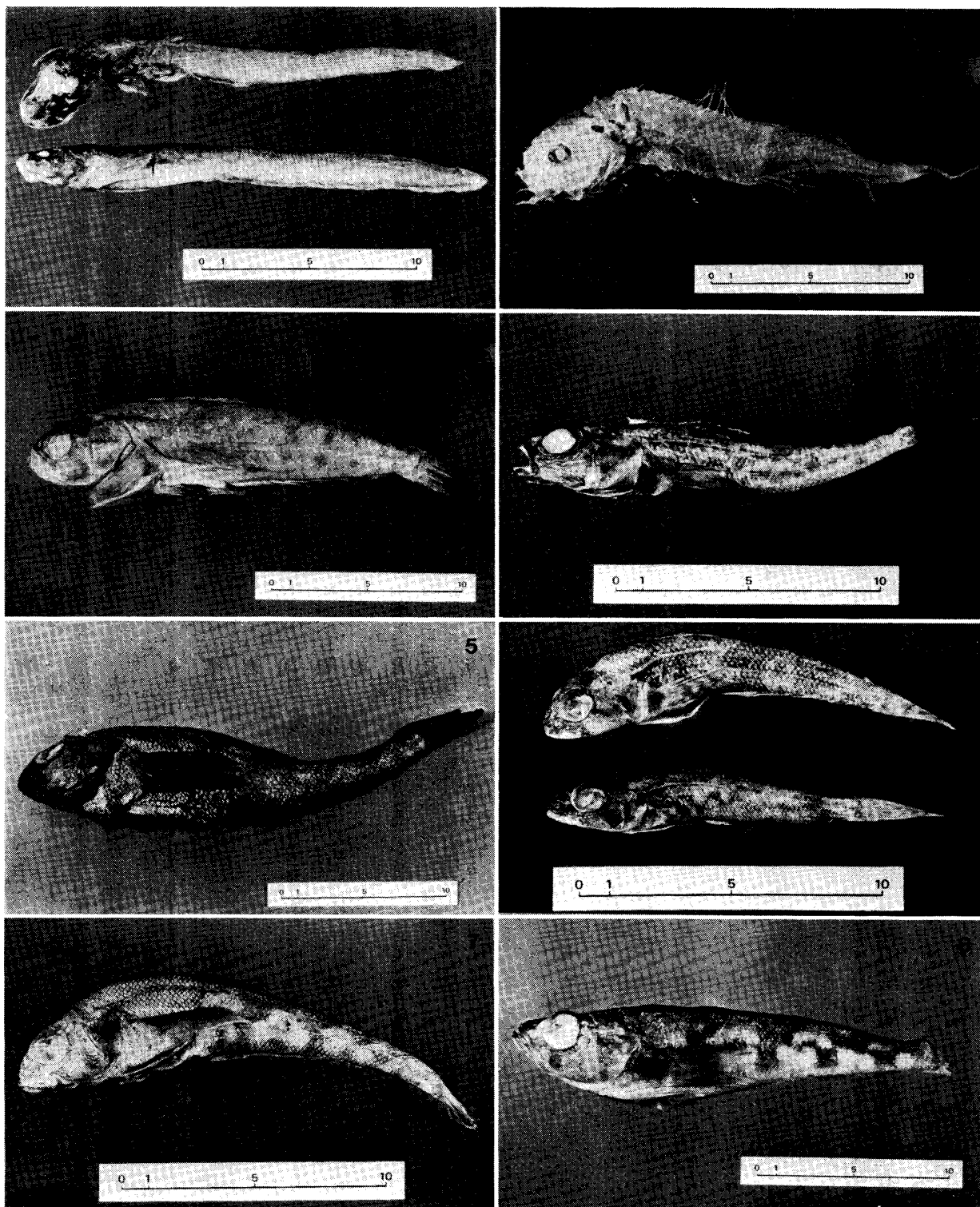


Plate 1. All the numbers above the measures represent cm.

1. *Rhigophila dearborni* DEWITT, ABE's catalogue number (abbreviated to A.) 18997' (top), 19070' (bottom).
2. *Paraliparis* sp., A 19118'.
3. *Pagothenia borchgrevinki* (BOULENGER), A. 19064'.
4. *Trematomus nicolai* (BOULENGER), A. 19105'.
5. *Trematomus loennbergii* REGAN, A. 19104'.
6. *Trematomus scotti* (BOULENGER), A. 19108' (top), A. 19107' (bottom).
7. *Trematomus lepidorhinus* (PAPPENHEIM), A. 19104'.
8. *Trematomus eulepidotus* REGAN, A. 19023'.

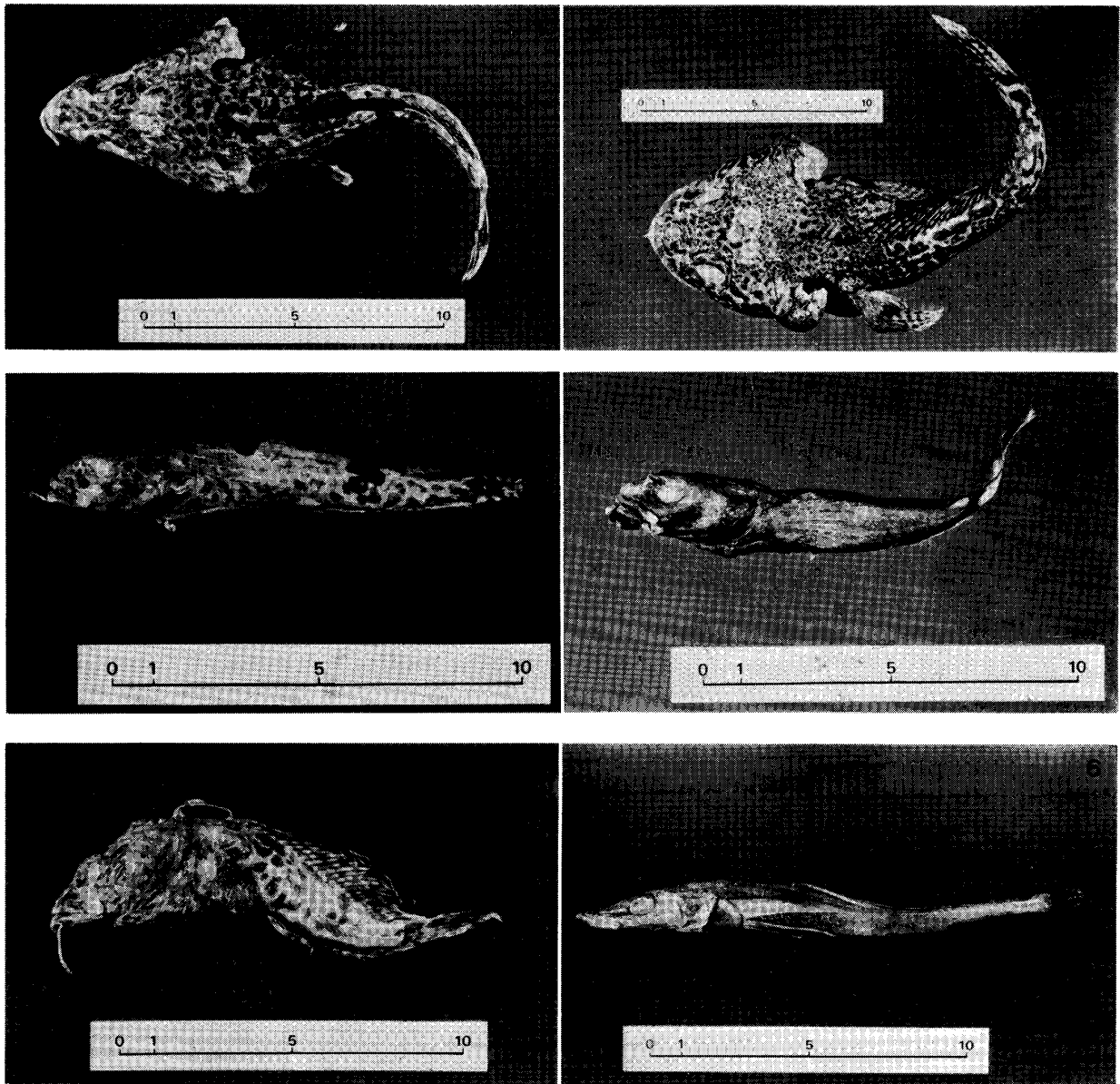


Plate 2. All the numbers above the measure represent cm.

1. *Pogonophryne marmoratus* NORMAN, ABE's catalogue number (abbreviated to A.) 18998'.
2. *Pogonophryne scotti* REGAN, A. 19068'.
3. *Artedidraco orianae* REGAN, A. 18991'.
4. *Dolloidraco longedorsalis* ROULE, A. 19044'.
5. *Histiodraco verifer* (REGAN), A. 19042'.
6. *Vomeridens infuscipinnis* (DEWITT), A. 19047'.

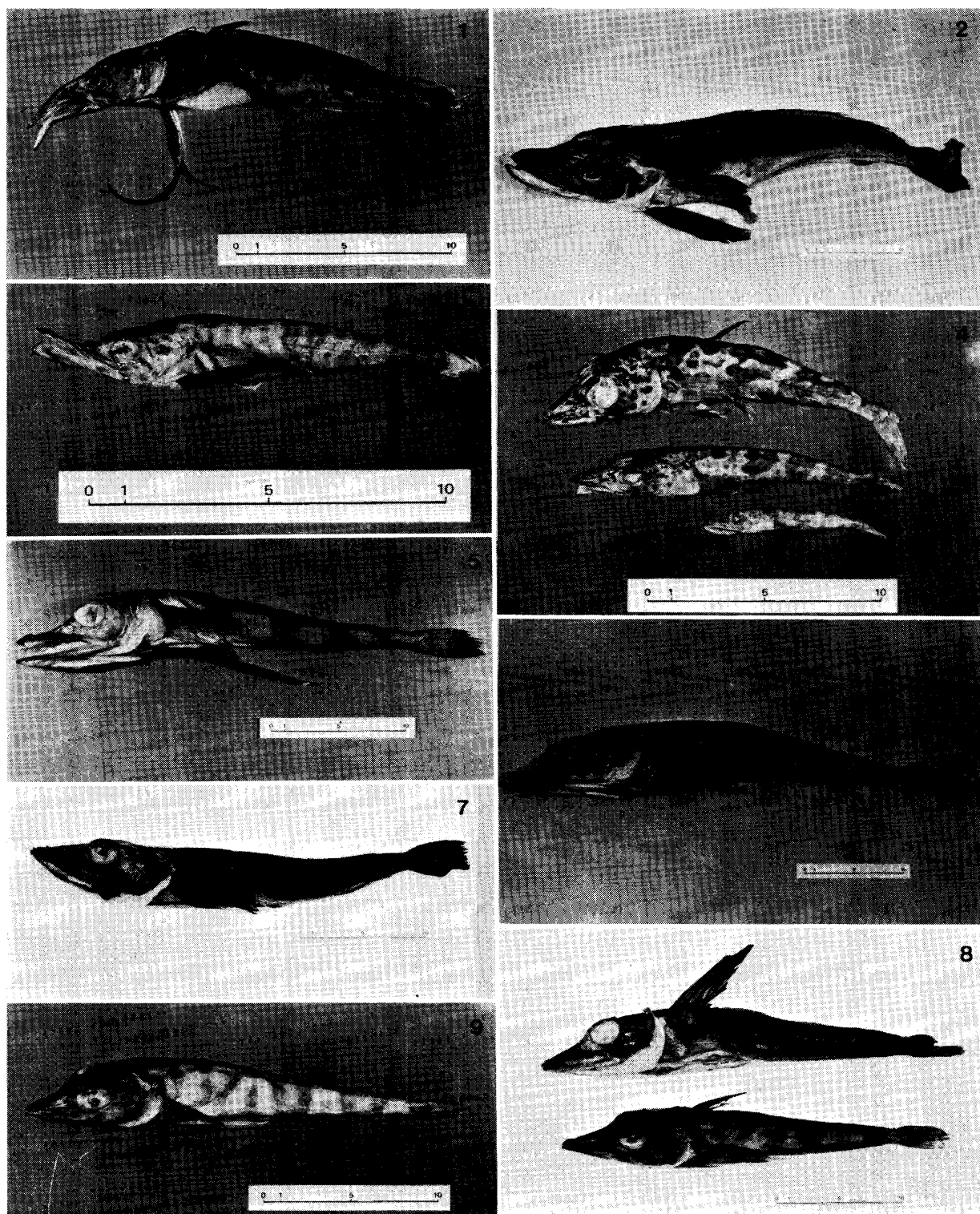


Plate 3. All the numbers above the measure represent cm.

1. *Neopagetopsis ionah* NYBELIN, ABE's catalogue number (abbreviated to A.) 18960'.
2. *Neopagetopsis ionah* NYBELIN, A. 19007'.
3. *Pagetopsis macropterus* (BOULENGER), A. 19048'.
4. *Pagetopsis maculatus* BARSUKOV and PERMITIN, A. 19049' (top), A. 18962' (middle), A. 18965' (bottom).
5. *Cryodraco antarcticus* DOLLO, A. 19016'.
6. *Cryodraco* sp., A. 19014'.
7. *Chionodraco hamatus* (LÖNNBERG), A. 19101'.
8. *Chionodraco myersi* DEWITT and TYLER, A. 19057' (top), A. 18977' (bottom).
9. *Chaenodraco wilsoni* REGAN, A. 18973'.



**Bathydraconidae:** Only two specimens of *Vomeridens infuscipinnis* (DEWITT) belonging to this family were collected. This species has never been recorded from the Ross Sea, East Antarctica. Type locality of this species is southern Weddell Sea and the other specimens have been recorded from the South Orkney Islands and Adelaide Island, West Antarctica.

Relative lengths and meristic counts are almost in agreement with the previous descriptions. The presence of vomerine teeth is an important character of *Vomeridens infuscipinnis*. One specimen measuring 145 mm in standard length has about ten vomerine teeth, but in the other specimen measuring 149 mm in standard length only two traces of vomerine teeth are recognized by means of alizarin red S staining.

DEWITT and HUREAU (1979) mentioned as “vomer with teeth in specimen longer than about 100 mm”, but they did not give the number of vomerine teeth observed. Variability of the number of vomerine teeth seems to be important. Two specimens of nearly the same size show that the body length is not the only factor of appearance of vomerine teeth or that the number of vomerine teeth is highly variable.

**Channichthyidae:** The collection contains eight species belonging to five genera. Three of five genera are noted below.

(1) *Pagetopsis*: BARSUKOV and PERMITIN (1958) revised this genus in detail, but they did not give the number of vertebrae, which, however, is useful to distinguish between two species included in the present samples from one another. The number of vertebrae of the specimens is as follows: *Pagetopsis macropterus*, 54 (1 specimen); *Pagetopsis maculatus*, 49 (2 specimens) and 50 (2 specimens). In the smallest specimen of *Pagetopsis maculatus* (68 mm in standard length) there is no cross-stripes on the pelvic fins and they are solid dark grey as in the pelvic fins of *Pagetopsis macropterus*. Five cross-stripes on the pelvic fins are recognizable in other three specimens of *Pagetopsis maculatus* (101–189 mm in standard length).

(2) *Chionodraco*: There are fifty-four specimens referable to this genus and two species, *Chionodraco hamatus* (3 specimens) and *Chionodraco myersi* (51 specimens). Readers are requested to refer to the revision of DEWITT and HUREAU (1979). Remarkable variability in the length of the highest dorsal spine of *Chionodraco myersi* is recognized, varying from 9.0% to 27.3% of standard length. This variability may be due to sexual dimorphism, but poor conditions of the gonads prevent us from determining the sex.

(3) *Cryodraco*: The genus *Cryodraco* was described by DOLLO (1900) for the species *Cryodraco antarcticus*, obtained from the Bellingshausen Sea, West Antarctica. The second species of this genus was reported by REGAN (1913) as *Cryodraco pappenheimi*. *Cryodraco atkinsoni*, third species of this genus, was described by REGAN (1914), but NORMAN (1938) concluded that *Cryodraco atkinsoni* was a junior synonym

Table 1. Meristic counts and pelvic fin length of *Cryodraco antarcticus* and *Cryodraco* sp.

Abe's catalogue number	<i>Cryodraco antarcticus</i>								<i>Cryodraco</i> sp.	
	19016'	19038'	19039'	19040'	19041'	19061'	19110'	19014'	19015'	
Standard length (mm)	307	301	334	291	236	284	380	408	377	
Number of vertebrae	27+42	27+41	27+43	27+42	26+44	28+41	27+42	27+41	25+42	
Fin-rays:										
Dorsal fin	V-43	IV-45	V-44	V-44	V-44	V-44	V-45	III-42	V-43	
Anal fin	43	43	44	44	43	44	44	43	45	
Pectoral fin										
Lateral line scales: Upper	27-27	25-25	24-25	26-25	24-24	24-24	25-25	25-25	26-27	
Middle	134-132	136-144	145-143	144-146	151-146	140-142	141-143	146-145	140-146	
Lower	15-14	12-11	12-13	*-16	14-10	10-12	12-12	14-14	12-18	
Origin of the lower lateral line above base of anal fin	4th-4th	6th-7th	4th-4th	4th-4th	**	7th-7th	6th-4th	14th-13th	11th-13th	
Posterior end of pelvic fin reaches above base of anal fin	20th-20th	24th-†	17th-18th	20th-18th	†-31st	25th-26th	12th-12th	4th-6th	8th-9th	
Length of pelvic fin (left) (% of standard length)	43.2	45.9	39.6	42.8	53.8††	48.7	34.0	28.8	29.8	

\* Lateral line scales had fallen off.

\*\* Advance of the anal fin origin.

† Distal end of the pelvic fins are broken.

†† Right side.

of *Cryodraco antarcticus* by the description of WAITE (1916).

The collection contains nine specimens belonging to this genus and it is recognizable that there are two forms in the collection. These forms are easily distinguished from each other by the origin of the lower lateral line and the relative length of the pelvic fin (Table 1). WAITE (1916) mentioned about the origin of the lower lateral line as follows: "...it is seen that in the smallest specimen the lower lateral line originates above the commencement of the anal." The difference of the origin of the lower lateral line is found in two forms of the larger specimens of the nearly same size. Changes with age in the relative length of the pelvic fins are well recognized, but changes of the origin of the lateral line with age do not seem to have been recorded previously. The difference of its origin is probably due to difference of species or sex. Two specimens which are referable to "*Cryodraco atkinsoni*" can be distinguished from other seven specimens identified as *Cryodraco antarcticus*. The two specimens (*Cryodraco* sp. as in the list) are found to be female, but the sex of others is not known because of the poor conditions of the gonads. Thus the identifications of these two specimens are left for future study.

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(Received August 1, 1980)